PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project	
Powerdale, Parkdale, and Oak Springs O&M	
BPA project number	**9301900**
Contract renewal date (mm/yyyy)	**October, 1999 - September, 2000**
Multiple actions? (indicate Yes or No)	**No**
Business name of agency, institution or organization requesting funding	
Oregon Department of Fish and Wildlife; Confederated Tribes of the Warm Springs Reservation of Oregon	
Business acronym (if appropriate)	**ODFW & CTWS**
Proposal contact person or principal investigator:	
Name	**Mick Jennings**
Mailing address	**3430 West 10th Street**
City, ST Zip	**The Dalles, OR 97058**
Phone	**(541)296-6866**
Fax	**(541)296-8886**
Email address	**mickjennings@netcnct.net**
	James A. Newton **3701 West 13th Street** **The Dalles, OR97058** **(541)296-4628** **(541)298-4993** **JAMES A. NEWTON@STATE.OR.US**
NPPC Program Measure Number(s) which this project addresses	
7.4L.2	
FWS/NMFS Biological Opinion Number(s) which this project addresses	
NA	
Other planning document references	
CRITFC. 1996. WY-KAN-USH-MI WA-KISH-WIT, Cited: Volume II:25-26. **Department of Natural Resources, CTWS, October, 1993. Hood River/Pelton Ladder Master Agreement. Cited: entire document.** **DOE and BPA. March, 1996. Draft Environmental Impact Statement (DOE/EIS-0241). Cited: entire document.** **DOE and BPA. July, 1996. Final Environmental Impact Statement (DOE/EIS-0241). Cited: entire document.**	

ODFW and CTWS. September, 1990. Hood River Subbasin Salmon and Steelhead Production Plan.

NPPC. 1992. NPPC approval letter for the Hood River Master Plan. April 16, 1992.

NPPC. 1994. Columbia River Basin Fish and Wildlife Program. Adopted November 15, 1982. Amended December 14, 1994.

O'Toole, P., and ODFW. 1991a. Hood River Production Master Plan. Cited: entire document.

Short description

Restore depressed populations of summer and winter steelhead and re-establish a self-sustaining spring chinook salmon population in the Hood River subbasin. Broodstock will be collected at the Powerdale Facility. Broodstock will be held and spawned at the Parkdale Facility. Eggs will be transferred to Oak Springs Hatchery (summer and winter steelhead) and Round Butte Hatchery (spring chinook) for incubation and rearing.

Target species

spring chinook, summer and winter steelhead

Section 2. Sorting and evaluation

Subbasin

Hood

Evaluation Process Sort

CBFWA caucus		CBFWA eval. process		ISRP project type	
X one or more caucus		If your project fits either of these processes, X one or both		X one or more categories	
X	Anadromous fish	X	Multi-year (milestone-based evaluation)		Watershed councils/model watersheds
	Resident Fish		Watershed project eval.		Information dissemination
	Wildlife			X	Operation & maintenance
					New construction
					Research & monitoring
					Implementation & mgmt
					Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description
20513	Hood River / Fifteenmile Creek Umbrella
8902900	Hood River Production Program/Round Butte Hatchery production and Pelton Ladder rearing
9500700	Pelton Ladder Hood River Production/PGE O&M
8805303	Hood River Production Program/CTWS M&E
8805304	Hood River Production Program/ODFW M&E
9802100	Hood River Fish Habitat / Implement habitat improvement actions

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1994	Collected first Hood River native winter steelhead broodstock at Powerdale Trap.	Winter steelhead broodstock have been collected each year at Powerdale Dam since 1994.
1996	began releases of Deschutes stock spring chinook in Hood River subbasin.	100,000 - 129,000 smolts have been released into Hood River since 1996
1996	Powerdale Trapping Facility completed.	Facility has been in continuous operation since completion. All anadromous fish are trapped and sorted at rivermile 4.0 (Hood River)
1997	Collected first Hood River native summer steelhead broodstock at Powerdale Trap	Approximately 25,000 summer steelhead smolts are scheduled for release into Hood River in 1999.
1997	Hood River Production Program EIS completed.	
1998	Parkdale Fish Facility completed and operational.	Spring chinook salmon and summer steelhead broodstock held. Approximately 40,000 spring chinook eggs collected and incubated to eyed stage before transfer to Round Butte.

1998	Oak Springs Hatchery - addition to hatchery building completed, including isolation/incubation and early rearing. New raceways and water supply nearing completion - will be completed for spring, 1999 rearing.	Rearing 1998 brood summer steelhead (25,000) and winter steelhead (50,000). Fin marking completed.

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Achieve an interim adult return of 1800 hatchery summer steelhead to the mouth of Hood River.(See umbrella for long range run size objectives)	a	Collect 40 Hood River wild summer steelhead broodstock at Powerdale Dam. Transfer fish to Parkdale. (observe Wild Fish Management Policy and Broodstock Collection Protocol)
		b	Hold and spawn 40 wild summer steelhead. (observe Spawning Protocol)
		c	Transfer eggs to Oak Springs Hatchery. Incubate, rear and fin-mark 40,000 summer steelhead smolts.
		d	Produce smolt that averages 18 cm and has a condition factor of 1.00 or less.
		e	Transport smolts to Hood River acclimation sites.
		f	Monitor and evaluate the operation and maintenance of each fish facility.
2	Achieve an interim adult return of 2250 hatchery winter steelhead to the mouth of Hood River. (See umbrella for long range run size objectives)	a	Collect 70 Hood River winter steelhead broodstock (50% wild/50% hatchery) at Powerdale Dam (observe Wild Fish Management Policy and Broodstock Collection Protocol). Transfer fish to Parkdale.
		b	Hold and spawn 70 winter steelhead. (observe Spawning Protocol)
		c	Transfer eggs to Oak Springs Hatchery. Incubate, rear and fin-mark 50,000 winter steelhead smolts.
		d	Produce smolt that averages 18 cm and has a condition factor of 1.00 or less.
		e	Transfer smolts to Hood River acclimation sites.
3	Achieve an interim adult return of 850 hatchery spring chinook to the	a	Collect 110 Deschutes stock spring chinook broodstock at Powerdale

Obj 1,2,3	Objective	Task a,b,c	Task
	mouth of Hood River. (See umbrella for long range run size objectives)		Dam. (observe Broodstock Collection Protocol) Transfer fish to Parkdale.
		b	Hold and spawn 110 spring chinook. (observe Spawning Protocol)
		c	Transfer eyed eggs to Round Butte Hatchery.
		d	Assist in acclimating a portion of 125,000 spring chinook smolts.

Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	10/99	9/00	Achieve an interim adult return of 1800 hatchery summer steelhead to the mouth of Hood River. (See **Hood River / Fifteenmile Creek Umbrella** for long range run size objectives)	*This milestone will not be attainable for several years.* (The first release of approximately Hood River stock smolts is scheduled for the spring of 1999.)	25%
2	10/99	9/00	Achieve an interim adult return of 2250 hatchery winter steelhead to the mouth of Hood River. (See **Hood River / Fifteenmile Creek Umbrella** for long range run size objectives)	*This milestone will be attainable by year 2002.*	35%
3	10/99	9/00	Achieve an interim adult return of 850 hatchery spring chinook to the mouth of Hood River. (See **Hood River / Fifteenmile Creek Umbrella** for long range run size objectives)	*This milestone will be attainable by year 2002.*	45%

Schedule constraints

NONE

Completion date
ON GOING

Section 5. Budget

FY99 project budget (BPA obligated):	$467,567

FY2000 budget by line item

Item	**Note**	**% of total**	FY2000 ($)
Personnel	Manager, assistant, seasonal Tech 1	39.0	$189,774
Fringe benefits	23%	12.1	$59,096
Supplies, materials, non-expendable property	utility trailer, wood stove, marlow pump, pallet jack, shop supplies	12.9	$62,909
Operations & maintenance	GMS support, EG servicing contract		0
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	Carport addition to Oak Springs HRPP residence	3.1	$15,000
NEPA costs			N/A
Construction-related support			0
PIT tags	# of tags:		0
Travel	per diem, air fare	1.3	$6,400
Indirect costs	ODFW and CTWS average 37.4%	24.5	$119,226
Subcontractor	Electrician, plumber, diesel mechanic, pump servicing and repairs	6.8	$33,000
Other	Employee training	0.0	$1,400
TOTAL BPA REQUESTED BUDGET			$486,805

Cost sharing

Organization	**Item or service provided**	**% total project cost (incl. BPA)**	Amount ($)
See **Hood River / Fifteenmile Creek Umbrella**			
Total project cost (including BPA portion)			

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget				

Section 6. References

Watershed?	Reference
	CRIFC. 1996. WY-KAN-USH-MI WA-KISH-WIT. The Columbia River Anadromous Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs, and Yakama Tribes. Portland, Oregon.
	CTWS and ODFW, cooperators. 1996. Annual progress report. Hood River and Pelton Ladder evaluation studies. Annual Progress Report of the CTWS and ODFW (Projects 88-053-03 and 88-053-04) to Bonneville Power Administration (BPA), Portland, Oregon.
	CTWS and ODFW, cooperators. January 1998. Annual progress report. Hood River and Pelton Ladder evaluation studies. Annual Progress Report of the CTWS and ODFW (Projects 88-053-03 and 88-053-04) to BPA, Portland, Oregon.
	DOE and BPA (U.S. Department of Energy and Bonneville Power Administration). March 1996. Hood river fisheries project. Draft Environmental Impact Statement (DOE/EIS-0241). Bonneville Power Administration, Portland, Oregon.
	DOE and BPA (U.S. Department of Energy and Bonneville Power Administration). July 1996. Hood River fisheries project. Final Environmental Impact Statement (DOE/EIS-0241). Bonneville Power Administration, Portland, Oregon.
	Northwest Power Planning Council (NPPC). 1987. Columbia River basin fish and wildlife program. Portland, Oregon.
	O'Toole, P., and ODFW. 1991a. Hood River production master plan. Final report of the CTWS and the ODFW (Project 88-053-03, Contract DE-BI79-89BP00631) to BPA, Portland, Oregon.
	O'Toole, P., and ODFW. 1991a. Hood River production master plan (Appendices). Final report of the CTWS and the ODFW (Project 88-053-03, Contract DE-BI79-89BP00631) to BPA, Portland, Oregon.

PART II - NARRATIVE

Section 7. Abstract

The goal of HRPP is to restore summer and winter steelhead trout populations and re-establish spring chinook using supplementation techniques in the Hood River subbasin in accordance with the Hood River Production Master Plan of July, 1991. This project addresses the majority of the hatchery components of the Hood River Production Program (HRPP). Overall, project objectives include a level of production that will eventually achieve an adult return to the mouth of Hood

River of 6,800 hatchery summer steelhead, 3,800 hatchery winter steelhead, and 1,700 hatchery spring chinook. To achieve these returns, it will require the release of 150,000 summer steelhead, 85,000 winter steelhead and 250,000 spring chinook smolts with a smolt to adult survival 4.5% for steelhead and 0.68% for spring chinook. The Northwest Power Planning Council (NPPC) asked HRPP managers to "phase-in" hatchery production to allow evaluation of potential impacts. The interim objectives identified in the EIS will achieve an adult return of 1,800 summer steelhead, 2,250 winter steelhead and 850 spring chinook. The current hatchery program is programed to release 40,000 summer steelhead, 50,000 winter steelhead and 125,000 spring chinook smolts.

Supplementation of steelhead utilizes hatchery reared smolts derived from wild stocks of the respective races. Reintroduction of spring chinook will be achieved through use of Deschutes stock, which are taken from the adjacent subbasin and are best suited to habitat conditions found in the Hood River subbasin. The techniques of supplementation will allow increased spawner escapement and distribution of adults which should result in increased numbers of naturally produced juveniles for emigration. Ongoing and planned habitat restoration activities will result in improved egg to smolt survival. Cooperation with other entities has resulted in improved upstream and downstream fish passage. Some of the stock recovery/restoration measures implemented in this project include: restricting passage of out-of-basin and excess hatchery adults upstream of Powerdale Dam (Rm 4), use of indigenous Hood River steelhead broodstock, matrix spawning, acclimation and volitional releases.

The ultimate measure of project success will be the achievement of the adult return objectives as previously discussed and as found in the **Hood River / Fifteenmile Creek Umbrella Proposal**. The ODFW and CTWS M&E projects (8805303 and 8805303) on Hood River have gathered five years of baseline information that will be used to evaluate project implementation.

Section 8. Project description

a. Technical and/or scientific background

The Hood River subbasin is home to four species of anadromous salmonids: chinook salmon, coho salmon, steelhead, and sea run cutthroat trout. Indigenous spring chinook salmon were extirpated during the late 1960's. The naturally spawning spring chinook currently present in the subbasin are the progeny of Deschutes stock released into the subbasin beginning in 1993. The historical Hood subbasin hatchery steelhead program utilized out-of-basin stocks for many years. Recently the indigenous stocks of summer and winter steelhead have been determined by ODFW to be at a moderate to high risk of extinction and NMFS has designated these steelhead stocks as *threatened* under the ESA.

The HRPP is a fish supplementation project in the lower Columbia River ESU funded by BPA and jointly implemented by CTWSRO and ODFW. The primary goals of the HRPP are to (1) re-establish naturally sustaining runs of spring chinook salmon, (2) rebuild naturally sustaining runs of summer and winter steelhead, (3) maintain genetic characteristics of the various Hood River populations, and (4) contribute to tribal and non-tribal fisheries, ocean fisheries, and the Northwest Power Planning Council's (NPPC) goal of doubling salmon runs in the Columbia Basin

(O'Toole, P. 1991a).

The NPPC, in accepting the HRPP Master Plan, recommended adopting a three-phased approach which included: the collection of baseline information, and project implementation (including facilities construction, and follow-up monitoring and evaluation [NPPC, 1992]). Comprehensive collection of data began in the Hood River subbasin in 1991, including information on the life history and production of anadromous salmonid stocks and habitat availability and deficiencies (CTWS and ODFW 1997). In 1996, The HRPP Environmental Impact Statement was completed cooperatively by BPA, CTWSRO, and ODFW. A record of decision was completed on October 10, 1996 by BPA administrator Randy Hardy, which supports the NPPC goals.

In Section 7 of the 1994 version of the Columbia River Basin Fish and Wildlife Program, the NPPC recommended that implementation of production (fish) and habitat (restoration) be fully coordinated (NPPC, 1994). The Tribes, in Volume II of the Spirit of the Salmon Plan, support the NPPC in the need for a combination of supplementation and habitat restoration project. "Restoration of the anadromous fish populations in the Hood River subbasin will need to incorporate a combination of improved natural fish production and supplementation with cultured fish. Improved natural production could occur through improvements in the screening of irrigation diversions, habitat restoration and passage restoration (CRITFC, 1996)."

The project implementation has included a major switch in the hatchery steelhead broodstock used for Hood River releases, from out of basin stocks (Big Creek and Skamania stocks) to the indigenous Hood River stocks. Collection of wild Hood River stock winter steelhead began in 1992 with an angler catch program. The following year wild Hood River winter steelhead were selected from throughout the entire run at the Powerdale Dam fish ladder and were subsequently matrix spawned to maximize potential genetic diversity. Out-of basin origin winter steelhead have not been passed upstream from Powerdale Dam since 1993, in order to protect the genetic integrity of the wild Hood River population. In addition ODFW has implemented the Oregon Wild Fish Management Policy, which states that Hood River stock hatchery winter steelhead can comprise no more than 50% of the total spawner population. Hood River wild summer steelhead broodstock were first collected at the Powerdale Fish Facility trap during the 1997-98 run. Out-of-basin hatchery origin summer steelhead are now prevented from migrating upstream beyond Powerdale Dam. The first release of Hood River stock summer steelhead smolts is planned for the spring of 1999. Winter steelhead smolts released into the Hood River subbasin have been acclimated since 1996. All future releases of winter and summer steelhead are scheduled for volitional release from subbasin acclimation facilities in order to increase smolt to adult survival and minimize potential adverse impacts, including competition with wild resident and anadromous fish.. ODFW implemented a mandatory wild steelhead release angling regulation within the subbasin beginning in 1992 to maximize protection of the depressed wild stocks during the subbasin sport fishery. The Hood River subbasin upstream from Powerdale Dam was also closed to all salmon and steelhead angling by Oregon Fish and Wildlife Commission emergency rule in 1998.

Deschutes stock spring chinook were first released into the Hood River subbasin in 1993. The 1997 spring chinook broodstock for the HRPP were collected from adults returning to the Powerdale Fish Facility. Hatchery spring chinook smolts destined for the Hood River subbasin

are being reared in cells within the modified Pelton fish ladder. This strategy has demonstrated consistently higher smolt to adult survival than conventional hatchery rearing methods. Spring chinook smolts have been volitionally released into the subbasin from acclimation facilities since 1996. All future releases are also scheduled for pre-release acclimation to improve smolt to adult survival and reduce intra and inter-specific competition.

The HRPP project includes several physical facilities which are discussed in Section 8 a. and d.

To date, other related HRPP projects have completed and assimilated subbasin biological and physical habitat surveys showing that the anadromous habitat available in the Hood River subbasin is underseeded and identifying areas in need of habitat restoration. The project has planned and undertaken some stream habitat restoration projects. One project identified in the approved Hood River Master Plan called for the screening of a major irrigation diversion (130 cfs) on the East Fork Hood River. This diversion was screened by the East Fork Irrigation District in 1997. Other habitat projects are being proposed by CTWS for 1998 and 1999 under the "Watershed" category.

b. Rationale and significance to Regional Programs

The NPPC under the Columbia River Basin Fish and Wildlife Program has approved a number of projects in the state of Oregon, Washington, and Idaho that are similar to HRPP. Several of these projects have been successfully implemented, including combinations of supplementation and habitat projects within the Umatilla and Yakima subbasins, involving state and tribal entities (CBFWA, 1997).

The O&M for this supplementation project is designed to restore depressed summer and winter steelhead stocks in the Hood River subbasin through the use of native Hood River stock smolt releases. The project also is designed to re-establish a self-sustaining spring chinook salmon population using a stock that is best adapted to the Hood River habitat conditions. It is believed that supplementation is the best alternative for restoring the extremely depressed steelhead stocks. Use of hatchery stocks in the subbasin should help to jump start the remnant naturally reproducing populations and take advantage of the subbasin's underseeded habitat.

The HRPP is consistent with several subsections of Section 7.0 of the NPPC's Fish and Wildlife Program. Specifically, the project is consistent with sections 7.0A, 7.4L.1 ,and 7.4L.2, with a combination of supplementation (HRPP, ongoing projects) and habitat restoration activities. The ultimate goal is to significantly increase natural fish production and survival. This goal will be achieved through a number of activities within the subbasin that will complement supplementation efforts, including: cooperative habitat restoration measures with private and public land managers; watershed restoration activities, coordinated through the Hood River Watershed Council; and improvements in adult fish passage; juvenile fish protection (i.e. screening); water quality; and water quantity. These habitat improvements will increase the likelihood that the HRPP supplementation activities will be successful in achieving project goals.

The companion HRPP M&E projects are assessing the affects of supplementation.

c. Relationships to other projects

The HRPP is composed of six separate contracts designed to increase production of wild summer and winter steelhead and to re-establish spring chinook within the Hood River subbasin. The six separate contracts, approved by the NPPC and funded by BPA, primarily provide funding for four broad categories of activities. These include: engineering; implementation (O&M); monitoring and evaluation studies; and habitat restoration. Funding for the engineering component of the HRPP has provided for the design and construction of facilities at Powerdale Dam, Parkdale, and Oak Springs Hatchery that are needed to implement the HRPP. Funding for implementation provides for broodstock collection, holding, fish transport, spawning, rearing, marking, and tagging. Funding for monitoring and evaluation studies provide for the evaluation of the HRPP and any interaction the hatchery program may be having on wild fish populations. The Hood River Habitat Project is also important in assisting species recovery by identifying and restoring fish habitat where opportunities exist in the Hood River subbasin.

There are a number of other, non-BPA funded programs in the subbasin that have direct positive impacts on the success of the HRPP. For example, the East Fork Irrigation District (EFID) has implemented new fish screening on their 130 cfs diversion from the East Fork Hood River. The construction and installation of this new fish also resulted in the construction of concrete sediment retention ponds. One of these ponds has been provided to the HRPP, at no cost, for steelhead smolt acclimation. EFID is working with HRPP personnel to determine the most efficient type of fish screen to install at their 30 cfs diversion from Neal Creek.

The Middle Fork Irrigation District (MFID) provided a temporary adult holding facility adjacent to the Parkdale site. In addition MFID has cooperated in the construction of the Parkdale facility, including the water supply tap into their powerhouse tailrace. MFID, in cooperation with the US Forest Service, has recently installed an upstream migrant fish trap at the base of Clear Branch Dam (Middle Fork Hood River). The Farmers Irrigation District (FID) has implemented instream habitat restoration on a major West Fork tributary. FID has been actively upgrading district fish screens and implementing water conservation measures.

The Mount Hood National Forest has had an active stream habitat restoration program throughout the subbasin. Their work has included the placement of instream structures and large wood in each of the main Hood River tributaries with a goal of restoring instream habitat diversity. The Hood River Watershed Group is taking an active role in activities that will improve the overall condition of the Hood River watershed and streams. They recently provided their unqualified endorsement of a proposal that will allow the placement of salmon and steelhead carcasses in the Hood River streams to enhance primary stream productivity.

PacifiCorp has provided the land needed for development of the Powerdale Fish Facility. They are currently undergoing FERC relicensing of Powerdale Hydroelectric Project which should result in major improvements to downstream migrant screening, instream minimum flows, overall water quality and development of an SOP for Powerdale Dam. Earlier they made improvements to the adult fish ladder.

d. Project history (for ongoing projects)

The HRPP Project 9301900 is completing its last leg of capital construction in FY 99 and will become solely an O&M project in FY 00.

HRPP reports and technical papers include the following:

CTWSRO and ODFW, Cooperators. 1997. Annual Progress Report. Hood River and Pelton Ladder evaluation studies. Annual Progress Report of the Confederated Tribes of Warm Springs Reservation of Oregon and Oregon Department of Fish and Wildlife (Projects 89-053-03 and 89-053-04) to Bonneville Power Administration, Portland, Oregon.

CTWSRO and ODFW, Cooperators. 1996. Annual Progress Report. Hood River and Pelton Ladder evaluation studies. Annual Progress Report of the Confederated Tribes of Warm Springs Reservation of Oregon and Oregon Department of Fish and Wildlife (Projects 89-053-03 and 89-053-04) to Bonneville Power Administration, Portland, Oregon.

CTWSRO and ODFW, Cooperators. 1995. Annual Progress Report. Hood River and Pelton Ladder evaluation studies. Annual Progress Report of the Confederated Tribes of Warm Springs Reservation of Oregon and Oregon Department of Fish and Wildlife (Projects 89-053-03 and 89-053-04) to Bonneville Power Administration, Portland, Oregon.

Bonneville Power Administration. 1996. Final Environmental Impact Statement. Bonneville Power Administration (Contract DOE/EIS-0241). Portland, Oregon.

O'Toole, P., and Oregon Department of Fish and Wildlife. 1991. Hood River Production Master Plan. Final report of the Confederated Tribes of the Warm Springs Reservation of Oregon and the Oregon Department of Fish and Wildlife (Project 88-053, Contract DE-B179-89BP00631) to Bonneville Power Administration, Portland, Oregon.

Smith, M., and Confederated Tribes of the Warm Springs Reservation of Oregon. 1991. Pelton Ladder Master Plan. Final report of the Oregon Department of Fish and Wildlife and the Confederated Tribes of the Warm Springs Reservation of Oregon (Project 89-029, Contract DE-BI79-89BP01930) to Bonneville Power Administration, Portland, Oregon.

ODFW and CTWSRO (Oregon Department of Fish and Wildlife and Confederated Tribes of the Warm Springs Reservation of Oregon). September, 1990. Hood River Subbasin Salmon and Steelhead Production Plan.

Jennings, M.D. and M. Lambert. 1996. Acclimating salmonids in the wilds near Hood River, Oregon. Proceedings of the 47th Annual Northwest Fish Culture Conference. CTWSRO.

Implementation of the O&M portion of the HRPP has resulted in some significant resource achievements, including a major switch in the hatchery steelhead broodstock used for Hood River releases, from out of basin stocks (Big Creek and Skamania stocks) to indigenous Hood River

stocks. Wild Hood River winter steelhead broodstock have been selected from throughout the entire run at Powerdale Dam since 1993 and have been matrix spawned to maximize potential genetic diversity. Out-of basin origin winter steelhead have not been passed upstream from Powerdale Dam since 1993, in order to protect the genetic integrity of the wild Hood River population (CTWS, 1997). In addition ODFW has implemented the Oregon Wild Fish Management Policy, which states that Hood River stock hatchery winter steelhead can comprise no more than 50% of the total spawner population. Winter steelhead smolts released into the Hood River subbasin have been acclimated since 1996 (Jennings, 1996).

Hood River wild summer steelhead were first collected for broodstock during the 1997-98 run. Out-of-basin hatchery origin summer steelhead are now prevented from migrating upstream beyond Powerdale Dam. ODFW implemented a mandatory wild steelhead release angling regulations within the subbasin beginning in 1992 to maximize protection of the depressed wild stocks during the subbasin sport fishery. The Hood River subbasin upstream from Powerdale Dam was also closed to all salmon and steelhead angling by Oregon Fish and Wildlife Commission emergency rule in 1998.

Deschutes stock spring chinook were first released into the Hood River subbasin in 1993. The decision to use Deschutes stock spring chinook was based on habitat similarities in the neighboring subbasin. In 1997 the broodstock for the HRPP was collected from adult spring chinook returning to the Powerdale Fish Facility. Hatchery spring chinook smolts destined for the Hood River subbasin are being reared in cells within the modified Pelton fish ladder. This strategy has demonstrated consistently higher smolt to adult survival than conventional hatchery rearing methods. Spring chinook smolts have been volitionally released into the subbasin from acclimation facilities since 1996.

The HRPP project includes several physical facilities that have been constructed or are near completion. HRPP project implementation has included the construction of the Powerdale Dam Fish Facility, which is a state of the art fish trapping and sorting facility. This facility allows project personnel to efficiently trap, sort, and/or transport all the adult salmonids arriving at Powerdale Dam. The project also includes the Parkdale Fish Facility. This facility provides adult broodstock holding and spawning facilities, early egg incubation, as well as juvenile acclimation ponds. HRPP also includes new egg incubation, early rearing, and smolt rearing facilities at Oak Springs Fish Hatchery. Construction of these facilities will be completed by December, 1998. Other important physical facilities associated with the HRPP project include three fish rearing cells in the PGE Pelton Fish Ladder, steelhead acclimation ponds on the East Fork Hood River (provided at no charge by the East Fork Irrigation District), and temporary fish acclimation ponds located on Longview Fibre Company property on the West Fork Hood River.

To date, the project has completed and assimilated subbasin biological and physical habitat surveys showing that the available Hood River subbasin anadromous habitat is underseeded and has identified areas in need of habitat restoration. The project has planned and undertaken some stream habitat restoration projects. One project identified in the approved Hood River Master Plan called for the screening of a major irrigation diversion (130 cfs) on the East Fork Hood River. This diversion was screened by the East Fork Irrigation District in 1997.

The HRPP has released approximately 125,000 spring chinook salmon smolts and 40,000 to 60,000 Hood River stock winter steelhead smolts into the subbasin annually since 1993. These releases have been acclimated prior to liberation since 1996.

The ongoing HRPP M&E project provides the data feedback needed to modify project actions when appropriate or necessary. For example: to restore the depressed wild steelhead populations, management actions have been implemented to maximize the protection of the wild component of the two steelhead stocks by implementation of wild release angling regulations. Blockage of access of out of basin stray steelhead and excess Hood River hatchery stock from the subbasin upstream of Powerdale Dam should insure protection of genetic integrity of the wild population. Matrix spawning of Hood River broodstock selected from throughout the run has been implemented to maintain natural genetic variability. Data from HRPP out migration studies have shown that acclimated and volitionally released hatchery winter steelhead smolts have a significant in-river survival advantage compared to direct release smolts. This technique should result in better smolt to adult survival and minimize interaction with wild anadromous and resident juveniles.

FY 98 was the first year of the HRPP Powerdale, Parkdale, and Oak Springs O&M budget and consisted of a total of $277,000. FY99 O&M costs amounted to $467,567. Funding for earlier fiscal years was spent entirely on capital construction of HRPP facilities.

e. Proposal objectives

1). Achieve an interim adult return of 1800 hatchery summer steelhead to the mouth of Hood River (see umbrella for the Hood River Master Plan run size objectives).

2). Achieve an interim adult return of 2250 hatchery winter steelhead to the mouth of Hood River (see umbrella for the Hood River Master Plan run size objectives).

3). Achieve an interim adult return of 850 hatchery spring chinook to the mouth of Hood River (see umbrella for the Hood River Master Plan run size objectives).

f. Methods

The project is carried out utilizing the newly constructed facilities at Powerdale Trap, Parkdale Fish Facility and Oak Springs Hatchery.

The Powerdale Fish Facility is a continuous trapping operation at Powerdale Dam (RM 4). This facility gives project personnel the opportunity to enumerate and gather specific biological data from each adult salmonid reaching the dam. Implementation of the Oregon Wild Fish Management Policy ensures that hatchery origin Hood River summer and winter steelhead will comprise no more than 50% of the respective spawning population. Steelhead adults that are not

passed upstream at Powerdale Dam are recycled to the river mouth in order to increase harvest opportunity. Steelhead broodstock are collected using a protocol developed by ODFW's geneticist after analyzing five years of baseline information to set up this small program. The broodstock guidelines are summarized as follows: 1). Broodstock are taken from throughout the respective steelhead and spring chinook runs and include 40 wild summer steelhead, 70 winter steelhead (35 wild and 35 hatchery), and 110 spring chinook and 2). Steelhead collection will consist of generally taking one fish and passing nine but it is also run size dependent; for spring chinook it consists of taking every other fish and passing the remainder, but again it is run size dependent. All steelhead and spring chinook broodstock are transported to Parkdale Fish Facility.

The Parkdale Fish Facility is used to hold summer and winter steelhead and spring chinook broodstock until spawning. Broodstock are spawned, utilizing the matrix spawning technique of splitting eggs from each female into separate groups, depending on the number of ripe males available, not to exceed a 3:3 matrix. In the case of winter steelhead, where some hatchery adults are used in the broodstock, at least one parent in each family group is a wild fish. However, in the case of summer steelhead, since the hatchery program is only in its second year, only wild adults are spawned. Steelhead eggs are transferred "green" to the isolation/incubation facilities at Oak Springs Fish Hatchery. Spring chinook eggs are eyed before transferring them to Round Butte Hatchery. A portion of the winter steelhead and spring chinook smolts reared for release into the subbasin are acclimated at the Parkdale Facility prior to their volitional release; the remainder are distributed to other subbasin acclimation sites. Steelhead that fail to volitionally migrate from subbasin acclimation facilities are transported and released near the mouth of the river where interaction with wild juveniles is minimal.

The Oak Springs Hatchery facilities associated with the HRPP include the isolation/incubation and early rearing equipment, and four new raceway ponds for the two Hood River races of steelhead. Hood River steelhead fingerlings are differentially fin-marked during their rearing in hatchery raceway ponds. The steelhead are reared at low density in order to produce a better quality smolt. Fingerling are not graded, however, they are separated into groups of large and small individuals and fed different diets. The ponds of smaller fish is held several additional weeks so their eventual size at release more closely corresponds with the size of fish in the large group. The target size is 18 cm. with a condition factor of 1.00 or less. Smolts are transferred in the spring to Hood River acclimation facilities for volitional release..

These techniques alone are not enough to meet the smolt to adult survival objective. Other related HRPP projects are addressing habitat restoration (screening, adult passage and riparian fencing) and remote portable acclimation/volitional releases of juveniles. The ongoing HRPP M&E Project has gathered five years of baseline biological data and will use that information to evaluate these actions.

The monitoring and evaluation of fish facility operation and maintenance will be a regular and ongoing activity at each of the fish production and acclimation sites, as well as at the fish trapping and sorting facility. Refer to the ODFW - M&E Project number 8805304 and CTWSRO - M&E Project number 8805303 for project M&E details.

g. Facilities and equipment

The Powerdale Fish Facility is a new facility that includes a fish trap and sorting ponds, a mechanical fish lift, truck loading equipment, and fish recovery and bypass structures. The facility is comprised of two buildings. One building houses the fish sorting, loading, and water pumping equipment, including electronic controls. The second building provides restroom facilities, as well as equipment storage, and space for the primary air compressor used to operate key trap components. A small utility building is also present on site to house the air compressor used to clean the facility water intake structure. This facility also includes a perimeter security fence and a one mile long single lane access road. The major equipment necessary to operate the facility was acquired during FY 97 and FY 98. A one ton truck with detachable snow plow and a portable fish transportation tank (holds up to 40 adults) were acquired during FY98.

The Parkdale Facility, completed in FY98, includes two adult holding ponds, two acclimation ponds, a fish trap/weir, spawning, incubation and cold storage building, office and two bedroom bunkhouse building, shop and garage, and two single family residences. Most of the equipment necessary to operate the facility is being purchased in FY 99. Major capital expenditures includes a tractor, snow blower, tools, office and bunkhouse furnishings and appliances (computer and communication equipment).

The Oak Springs Hatchery expansion associated with the HRPP (scheduled for completion in the spring of 1999) includes incubation trays with isolation capabilities with sufficient capacity to accommodate up to 250,000 steelhead eggs. Early rearing troughs and circular ponds are included to handle the Hood River steelhead production. The facility also includes equipment necessary to adequately treat the effluent from the isolation/incubation and early rearing equipment. A new water supply has been developed to provide the water needed for the four new raceway rearing ponds used in the final rearing of Hood River steelhead to smolt stage. Most of the equipment needed to operate this hatchery addition will be provided as part of the facility construction. One additional anticipated capital construction item is the construction of a carport at the HRPP residence. This will complete the housing needs of the additional FTE as a result of HRPP steelhead rearing project.

h. Budget

The Powerdale Fish Facility is operated by a Natural resource Specialist 2, with eight months of assistance from seasonal technician, and approximately three months of Supervisory Biologist 3 support and oversight. The variety of migratory salmonids in the subbasin requires year around, seven day per week, operation of the facility. Supplies purchased during the fiscal year include items needed for operation and maintenance of the facility. The sophisticated electronic controls, water supply system, air actuated valves and water intake screen de-fouler require periodic maintenance by specifically trained subcontractors.

The Parkdale Fish Facility is a two person station with 12 months seasonal time. The majority of the seasonal time is used to man the station during the weekends. Because steelhead and/or

spring chinook are held virtually year-around, it is necessary to have personnel available 24 hours per day. Supplies include some items not purchased when facilities first came on line. The GMS (sophisticated security and monitoring system at Parkdale) is a technology that requires highly trained personnel to service. Subcontractors are for routine service and maintenance needs.

The HRPP facilities at Oak Springs Fish Hatchery require a full time fish and wildlife technician, as well as four months of seasonal technician assistance. The egg to smolt production encompasses one calendar year of continuous fish culture activity. Supplies include fish feed, prophylactic drugs, antiseptic solutions, disposable fish pathology supplies, as well as items required for routine fish hatchery operation.

Section 9. Key personnel

MICK JENNINGS
3430 W 10th Street
The Dalles, OR 97058

EDUCATION
B.S. in Fisheries Science 1965
Dept. of Fisheries and Wildlife
Oregon State University, Corvallis, OR

PROFESSIONAL EXPERIENCE

CONFEDERATED TRIBES OF THE WARM SPRINGS RESERVATION OF OREGON
The Dalles, Oregon. March, 1995 to present. Salaried-40+hrs/week.
Job Title: **Program Coordinator, Hood River Production Program**
Duties: This position oversees the Tribal portion of the Hood River Production Program (HRPP), a Bonneville Power Administration funded program which is to restore anadromous fish runs in Hood River. Duties include oversight of project administration, engineering, construction, monitoring and evaluation of Hood River research, habitat evaluation and fish culture. This position updates Tribal Fish and Wildlife Committee, Tribal Council, Northwest Power Planning Council and others on progress of HRPP. This position budgets and administers a $500,000 monitoring and evaluation contract of Hood River research and supervises a staff of five full-time and three seasonal employees in an office in The Dalles, Oregon.

OREGON DEPARTMENT OF FISH AND WILDLIFE
Portland, Oregon. April, 1990 to February, 1995. Salaried 40+hrs/week.
Job Title: **Steelhead Program Leader**
Duties: This position directs, guides and assists the regions in the Department to implement a Statewide Steelhead Management program. Major duties consist of providing programmatic direction by coordinating the implementation of the policies, objectives and guidelines contained in the Statewide Steelhead Plan; preparing quarterly program progress reports, annual Steelhead Report, and other special reports and news releases; preparing and monitoring biennial budget; directing the research necessary to implement the Steelhead Plan; directing staff involved in

collection and analysis of fisheries data; coordination of projects affecting steelhead resources; and providing guidance to Department personnel responsible for implementing the Steelhead Plan on state-of-the-art steelhead management techniques.

OREGON DEPARTMENT OF FISH AND WILDLIFE
Roseburg-Grants Pass, Oregon
Job Title: **District Fish Biologist**, June, 1982 to March, 1990. Salaried-40+hrs/week.
Assistant District Fish Biologist, November, 1966 to May, 1982. 40hrs/week
Duties: Management biologist responsible developing, planning, supervising, analyzing and completing various fish management programs in the district. Approximately 60 percent of activities involved habitat protection and restoration. A considerable amount of the habitat restoration activities involved adult and juvenile fish passage issues. Improvements to artificial fish passage barriers that I assisted in design and personally worked on included Little Butte Dam, Fielder Dam, Waters Creek Dam, Savage Rapids Dam, Kane Creek culvert, and Wimer Dam. I was continually evaluating fish passage at the approximately 100 small dams in the Rogue Basin. Also, a major part of my duties was spent supervising the fish screens program in the upper Rogue where over 150 rotary screens were in operation. Coordinated stream habitat restoration projects with the five USFS ranger districts that I worked with were routinely reviewed and evaluated for fishery resource benefits.

PUBLICATIONS/JOB COMPLETIONS

Steelhead Plan, Oregon Department of Fish and Wildlife, Wade M., et al. 1995. This is a comprehensive plan for production and management of Oregon's anadromous steelhead. I was the primary person responsible for its development and completion, including setting up and overseeing technical and public advisory committees, incorporating comments and developing support of co-managers and the public, and finally adoption by the Fish and Wildlife Commission. This process took about 18 months.

Jennings, M., Hooton, B., Jacobs S., Kostow, K., McPherson, B., Nickelson T., Smith, A., Weeks, H. 1995. Biennial report on the status of wild fish in Oregon. Oregon Department of Fish and Wildlife. Portland, Oregon. 217 p.

Jennings, M. D., M. Lambert. Acclimating salmonids in the wilds near Hood River, Oregon. January, 1996. Proceedings of the 47th annual Fish Culture Conference. Victoria, British Columbia, V8V 1X4, Canada. pages 38-44.

Jennings, M., Lambert, M. B., O'Toole, P. 1995. Hood River and Pelton Ladder evaluation studies. Annual Progress Report (Project 89-053-03) of the Confederated Tribes of the Warm Springs Reservation of Oregon. In cooperation with Oregon Department of Fish and Wildlife. Report B, pages 173-285 to Bonneville Power Administration, Portland. Oregon.

Jennings, M., Lambert, M.B., McCanna J. 1996. Hood River and Pelton Ladder evaluation studies. Annual Progress Report (Project 89-053-03) of the Confederated Tribes of the Warm Springs Reservation of Oregon. In cooperation with Oregon Department of Fish and Wildlife. Report B, pages 163-257 to Bonneville Power Administration, Portland, Oregon.

JIM NEWTON
3701 West 13th Street
The Dalles, Oregon 97058

EDUCATION

B.S. in Wildlife Management 1970
Dept. of Fisheries and Wildlife
Oregon State University, Corvallis, OR.

PROFESSIONAL EXPERIENCE

OREGON DEPARTMENT OF FISH AND WILDLIFE
The Dalles, Oregon, May 1981 to present. Salaried monthly - 40+ hours/week.
Job Title: **District Fish Biologist, Mid-Columbia District**.
Duties: This position is responsible for all fishery management activities within the 5,000 square mile Mid-Columbia Fish District. Specific duties include the overseeing of that portion of the Hood River Production Project dealing with the Powerdale Fish Facility operation and maintenance, project coordination with the CTWS and managers of the Round Butte and Oak Springs fish hatcheries. These duties include oversight for the Powerdale Fish Facility operation and maintenance, fish trapping, broodstock collection and transportation, and broodstock spawning. This position budgets and administers a $150,000 operation and maintenance contract for the Powerdale Fish Facility and supervises four full time and three seasonal positions in the Mid-Columbia District Office.

OREGON DEPARTMENT OF FISH AND WILDLIFE
Portland, Oregon. September 1979 to May 1981. Salaried monthly - 40+ hours/week.
Job Title: **Habitat Conservation Division Staff Biologist**.
Duties: This position coordinated the review and comments on State Clearinghouse notices of proposed federally funded projects throughout the state. The review and comments on proposed oil, gas, and geothermal energy exploration projects was also coordinated with department field biologists. This position worked with Portland and appropriate field staff to review and comment on county land use plans being developed and amended throughout the state to insure that the state's fish and wildlife resources were adequately addressed and protected.

OREGON DEPARTMENT OF FISH AND WILDLIFE
The Dalles, Oregon. September 1971 to September 1979. Salaried monthly - 40+ hours/week.
Job Title: **Assistant District Fish Biologist**.
Duties: This position assisted the district fish biologist with all phases of fishery management within the Mid-Columbia Fish District. Specific duties included: working with research personnel conducting fishery research on the lower Deschutes River; stream habitat restoration planning and implementation; environmental investigations (i.e. Corps, DSL, Forest Practices, etc); angler use and harvest sampling programs; fish population inventory; and regular and special report preparation.

PUBLICATIONS/JOB COMPLETIONS

Mid-Columbia Fish District Annual Report - 1997, ODFW (unpublished). This is a concise reporting of all fishery management activities occurring within the Mid-Columbia Fish District during calendar year 1996. I was the person responsible for the preparation and completion of this report and distribution within the ODFW. This is an ongoing process that has been greatly facilitated by the preparation of detailed monthly reports. This report provides a concise summary of much of the district's institutional knowledge. 83 p.

Lower Deschutes River Resident Trout Population Inventory Report, ODFW. Newton, James and Leslie Nelson, 1997. This is a report on annual Deschutes River redband trout population inventory in two representative reaches of the lower Deschutes River. I was the person responsible for the initiation and completion of the field inventory, data analysis, and report preparation and completion. This project was completed in cooperation with the CTWS. 32 p.

Annual Progress Report - Lower Deschutes River, Oregon, Fish Population Studies (federal aide report for Sport Fish Restoration funding). Newton, James and Steven Pribyl, 1996. This is a comprehensive summary of lower Deschutes River anadromous fish studies, including harvest and population and spawner escapement estimates. I am the person responsible for the annual inventory program and completion of annual data analysis and progress report completion. This is an ongoing program that provides important biological data that is used as a valuable tool for fish management strategies. 37 p.

Lower Deschutes River Management Plan and Environmental Impact Statement. BLM, et al. 1993. This is a comprehensive plan for recreational use of the lower 100 miles of the Deschutes River. The plan also contains specific management goals and objectives for natural resource management. I was one of the people comprising the technical team that drafted much of the plan dealing with natural resource management within the river corridor. I provided much of the technical support for the fish and wildlife resources covered by this plan. Development of the plan included considerable coordination with other state, federal, and local government agencies, as well as the CTWS, and various river user groups. This plan took more than four years to complete. 160 p.

RANDALL J. ROBART
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Maupin, Oregon 97037

EDUCATION

A.S. Fisheries Technology 1977
Mt. Hood Community College
Gresham, Oregon

PROFESSIONAL EXPERIENCE

OREGON DEPARTMENT OF FISH AND WILDLIFE

Oak Springs Fish Hatchery, Maupin Oregon. February 1987 to present. Salaried 40+ hrs/week
Job Title: **Fish and Wildlife Manager 2**
Duties: This position manages all aspects of Oak Springs Fish Hatchery, including: fish propagation, facility maintenance, staff development, planning, and monitoring and evaluation. This position is responsible for rearing three stocks of catchable and fingerling-sized rainbow trout, one stock of hatchery summer steelhead, one stock of wild summer steelhead, and two stocks of wild winter steelhead, as well as maintaining two hatchery rainbow brood stocks. This position closely coordinates fish culture activities with four ODFW administrative regions, ODFW headquarters staff, seven other ODFW hatcheries, and seven ODFW fish districts. This position also closely coordinates with HRPP personnel in all aspects of the Hood River stock summer and winter steelhead production.

OREGON DEPARTMENT OF FISH AND WILDLIFE
Round Butte Fish Hatchery, Madras, Oregon. October 1984 to February 1987. Salaried 40+ hrs/week
Job Title: **Fish and Wildlife Manager 1**
Duties: This position managed all aspects of fish culture at Round Butte Fish Hatchery, including: fish propagation, facility maintenance, staff development, planning, and monitoring and evaluation. This position is responsible for rearing one stock of hatchery summer steelhead and one stock of hatchery spring chinook. Facility management included the operation of an adult trapping facility located at the Pelton Regulation Dam on the Deschutes River. This position closely coordinates fish culture activities with one ODFW administrative region, ODFW headquarters staff, one ODFW fish district, Portland General Electric Company staff, and CTWSRO.

EXPERTISE

Described above

PUBLICATIONS / JOB COMPLETIONS

There are no relevant publications. Job completions are adequately described above.

JAMES W. GIDLEY
HC 66 Box 528
Cascade Locks, Oregon 97014

EDUCATION

A.S. in Fisheries Technology
Mt. Hood Community College

Gresham, Oregon

PROFESSIONAL EXPERIENCE

OREGON DEPARTMENT OF FISH AND WILDLIFE
Cascade Locks, Oregon. April 1982 to present. Salaried 40 hrs/wk
Job Title: **Assistant Hatchery Manager**
Duties: This position assists with the planning and supervision of hatchery operations, including: adult broodstock collection, spawning, incubation, rearing, and liberation of smolts. This position is responsible for maintaining daily, monthly and annual facility reports, as well as maintaining hatchery equipment and grounds.

OREGON DEPARTMENT OF FISH AND WILDLIFE
Nehalem, Oregon. April 1979 to April 1982. Salaried 40 hrs/wk
Job Title: **Fish and Wildlife Technician 1**
Duties: This position assisted with the collection of adult broodstock, which was sorted by lot, species, sex, and maturity. This position assisted with all phases of the fish culture program, equipment and grounds maintenance, and record keeping.

OREGON DEPARTMENT OF FISH AND WILDLIFE
Butte Falls, Oregon. August 1976 to April 1979. Salaried 40 hrs/wk
Job Title: **Fish and Wildlife Technician**
Duties: This position assisted with various fish culture activities, including fish feeding, collection of mortalities, and record keeping. The position also assisted with the collection of adult broodstock at remote sites, fish spawning, and the transfer of eggs. This position also was responsible for driving and maintaining the fish liberation truck.

PUBLICATIONS / JOB COMPLETIONS

There are no relevant publications. Job completions are adequately described above.

Section 10. Information/technology transfer

Project planning, implementation, and continued monitoring of the project will be summarized within the HRPP Annual Report to BPA (Projects 8905303 and 890304). Project findings and other information will be presented to the public and outside agency staff and NPPC through oral presentations and local newspaper reports.

Congratulations!